# TENTATIVE STANDARDS

FOR

# VITRIFIED CLAY PRODUCTS

**Vitrified Salt Glazed Clay Sewer Pipe and Fittings**
**Fire Clay Flue Linings and Fittings**
**Flue or Chimney Pipe and Fittings**
**Wall Coping and Fittings**
**and**
**Specifications for the Laying of Vitrified Salt Glazed Clay Sewer Pipe**

*Issued by*

**CLAY PRODUCTS ASSOCIATION**

**Chicago, Illinois**

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"BUILD FOR ETERNITY WITH VITRIFIED CLAY
—TESTED BY NATURE AND FIRE
—IT NEITHER RUSTS NOR DOES IT DECAY!"

# PREFACE

The purpose of this publication is to secure the co-operation of engineers, architects and others interested in drainage and building materials in the general effort for the standardization of all manufactured products and the elimination of varieties, having for its object, the lowering of production costs and consequent saving to the consuming public by the manufacturers of Vitrified Salt Glazed Clay Sewer Pipe.

Some cities require special designs to meet local drainage conditions, which have been and will be continued to be supplied by the manufacturers serving those communities, but it is believed that the pipe and fittings included herein will meet every requirement for good sewerage practice, and that in nearly every instance adjustments to conform to the proposed standards can be made with profit and betterment of service.

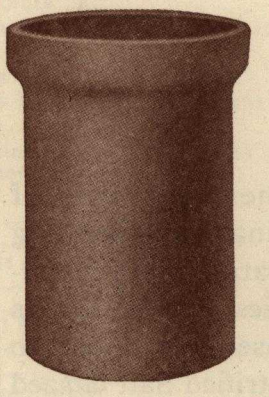
All pipes, Y's and T's conform in socket to the design of the Standard Specifications for Clay Sewer Pipe of the American Society for Testing Materials.

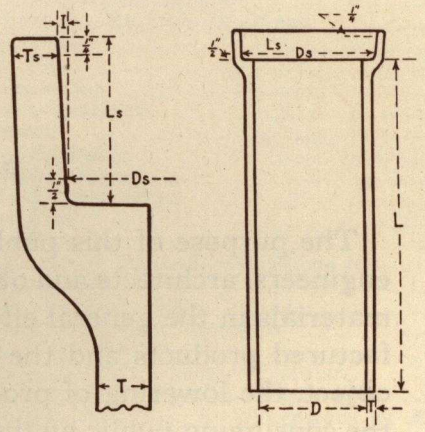
The Standard Specifications for Clay Sewer Pipe of the American Society for Testing Materials is also designated as "A. S. T. M. Pipe" and conforms in thickness to pipe formerly known as Double Strength Pipe.

The co-operation of every engineer and architect in this effort for standardization is solicited, and criticisms and suggestions are cordially invited, both as to the A. S. T. M. Standard and the lists of proposed standard manufacture.

# Vitrified Salt Glazed Clay Sewer Pipe

## American Society for Testing Materials—Standard Specifications






### DIMENSIONS OF CLAY SEWER PIPE*

| Internal Diameter (D), in. | Approximate Weight per Foot Lbs. | Laying Length (L), ft. | Inside Diameter at ½ in. Above Base of Socket (Ds), in. †, ‡ | Annular Space, in. | Depth of Socket (Ls), in. | Minimum Taper of Socket (H:Ls) | Thickness of Barrel (T), in. | Thickness of Socket (Ts) | Internal Diameter (D), in. |
|---|---|---|---|---|---|---|---|---|---|
| 4 | 9 | 2 | 5¾ | ⅜ | 1¾ | 1:20 | ½ | The thickness of the socket ½ in. from its outer end shall be not less than three-fourths of the thickness of the barrel of the pipe. | 4 |
| 6 | 15 | 2, 2½ | 8¼ | ½ | 2¼ | 1:20 | ⅝ | | 6 |
| 8 | 24 | 2, 2½, 3 | 10½ | ½ | 2½ | 1:20 | ¾ | | 8 |
| 10 | 33 | 2, 2½, 3 | 12¾ | ½ | 2½ | 1:20 | ⅞ | | 10 |
| 12 | 45 | 2, 2½, 3 | 15⅛ | 9/16 | 2¾ | 1:20 | 1 | | 12 |
| 15 | 75 | 2, 2½, 3 | 18¾ | ⅝ | 2¾ | 1:20 | 1¼ | | 15 |
| 18 | 105 | 2, 2½, 3 | 22¼ | ⅝ | 3 | 1:20 | 1½ | | 18 |
| 21 | 140 | 2, 2½, 3 | 25⅞ | 11/16 | 3¼ | 1:20 | 1¾ | | 21 |
| 24 | 180 | 2, 2½, 3 | 29⅜ | 11/16 | 3⅜ | 1:20 | 2 | | 24 |
| 27 | 245 | 2½, 3 | 33⅛ | 13/16 | 3½ | 1:20 | 2¼ | | 27 |
| 30 | 300 | 2½, 3 | 36⅝ | 13/16 | 3½ | 1:20 | 2½ | | 30 |
| 33 | 355 | 2½, 3 | 40 | ⅞ | 4 | 1:20 | 2⅝ | | 33 |
| 36 | 395 | 2½, 3 | 43¼ | ⅞ | 4 | 1:20 | 2¾ | | 36 |

*Applications of dimensions given in this table are shown on drawing above.

†When pipes are furnished having an increase in thickness over that given in last column, the diameter of socket shall be increased by an amount equal to twice the increase of thickness of barrel.

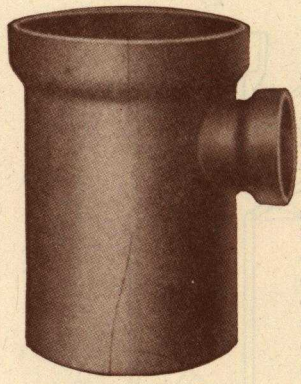
‡When the pipes furnished have an average diameter larger than the nominal size, the inside diameter of the socket shall be greater by the same amount than the values given in the third column.

### PERMISSIBLE VARIATIONS IN DIMENSIONS OF CLAY SEWER PIPE

| Nominal Size, Internal Diameter, in. | Limits of Permissible Variation in: | | | | | |
|---|---|---|---|---|---|---|
| | Length in. per ft. (—) | Lengths of Two Opposite Sides, in. per foot of length | Internal Diameter, in. | | Depth of Socket, in. (—) | Thickness of Barrel, in. (—) |
| | | | Spigot (±) | Socket (±) | | |
| 4 | ¼ | ⅛ | ⅛ | 3/16 | ¼ | 1/16 |
| 6 | ¼ | ⅛ | 3/16 | ¼ | ¼ | 1/16 |
| 8 | ¼ | ⅛ | ¼ | 5/16 | ¼ | 1/16 |
| 10 | ¼ | ⅛ | ¼ | 5/16 | ¼ | 1/16 |
| 12 | ¼ | 3/16 | 5/16 | ⅜ | ¼ | 1/16 |
| 15 | ¼ | 3/16 | 5/16 | ⅜ | ¼ | 3/32 |
| 18 | ¼ | 3/16 | 7/16 | ½ | ¼ | 3/32 |
| 21 | ¼ | 3/16 | ½ | 9/16 | ¼ | ⅛ |
| 24 | ⅜ | ¼ | 9/16 | ⅝ | ¼ | ⅛ |
| 27 | ⅜ | ¼ | ⅝ | 11/16 | ¼ | ⅛ |
| 30 | ⅜ | ¼ | ⅝ | 11/16 | ¼ | ⅛ |
| 33 | ⅜ | ¼ | 11/16 | ¾ | ¼ | 3/16 |
| 36 | ⅜ | ¼ | ¾ | 13/16 | ¼ | 3/16 |

NOTE—The minus sign (—) alone indicates that the plus variation is not limited, the plus and minus sign (±) indicates variation in both excess and deficiency in dimension.

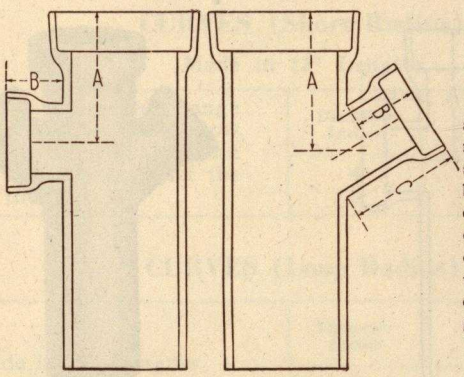
# Vitrified Salt Glazed Clay Sewer Pipe Fittings



**"T" Branches**

are made with the spur set on the barrel at an angle of 90 degrees.

The spur is molded on the barrel before drying, burning or glazing is done, making the whole a one-piece salt glazed unit.




**"Y" Branches**

are made by molding the spur on the barrel before drying, burning or glazing is done, making the whole a one-piece salt glazed unit.

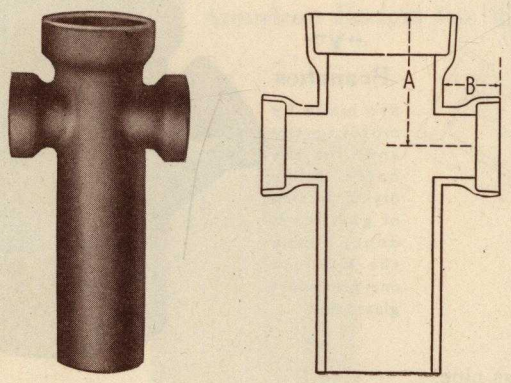
Furnished in same lengths as pipe.

## APPROXIMATE DIMENSIONS

| Barrel Diameter Inches | Spur Diameter Inches | "T" BRANCHES | | "Y" BRANCHES | | |
|---|---|---|---|---|---|---|
| | | A Inches | B Inches | A Inches | B Inches | C Inches |
| 4 | 4 | 6 | 3½ | 8½ | 3¾ | 8½ |
| 6 | 4 | 7 | 3½ | 9 | 3¾ | 8½ |
| 6 | 6 | 8 | 4½ | 10 | 4½ | 11½ |
| 8 | 4 | 7½ | 3½ | 9 | 3¾ | 8½ |
| 8 | 6 | 8½ | 4½ | 11 | 4½ | 11½ |
| 8 | 8 | 9½ | 5 | 12 | 4½ | 12½ |
| 10 | 4 | 8½ | 3½ | 10 | 3¾ | 8½ |
| 10 | 6 | 10 | 4½ | 12 | 4½ | 11½ |
| 10 | 8 | 11 | 5 | 13 | 5 | 13 |
| 10 | 10 | 11½ | 5 | 14 | 6 | 14¾ |
| 12 | 4 | 9 | 3½ | 10 | 3¾ | 8½ |
| 12 | 6 | 10 | 4½ | 11 | 4½ | 11 |
| 12 | 8 | 11 | 5 | 13 | 5½ | 13 |
| 12 | 10 | 11½ | 5 | 14 | 6 | 13 |
| 12 | 12 | 12½ | 5 | 16 | 6½ | 17½ |
| 15 | 6 | 9½ | 4 | 12 | 4 | 10¼ |
| 15 | 8 | 11 | 5 | 14 | 4½ | 12½ |
| 15 | 10 | 11½ | 5 | 16 | 5 | 14¾ |
| 15 | 12 | 12½ | 5 | 17 | 5½ | 17½ |
| 15 | 15 | 14 | 5½ | | | |
| 18 | 6 | 11 | 4½ | 13 | 4 | 10¼ |
| 18 | 8 | 11½ | 4½ | 15 | 4½ | 12½ |
| 18 | 10 | 12½ | 4½ | 17 | 5 | 14¾ |
| 18 | 12 | 15 | 5 | 18 | 5½ | 17½ |
| 18 | 15 | 16 | 5½ | | | |
| 18 | 18 | 17 | 6 | | | |
| 21 | 6 | 10½ | 4 | 14 | 4 | 10¼ |
| 21 | 8 | 11½ | 4½ | 15 | 4½ | 12½ |
| 21 | 10 | 13½ | 4½ | 17 | 5 | 14¾ |
| 21 | 12 | 14 | 5 | 19 | 5½ | 17½ |
| 21 | 15 | 15½ | 5 | 19½ | 6 | 20¾ |
| 21 | 18 | 17 | 6 | | | |
| 21 | 21 | 18 | 6½ | | | |
| 24 | 6 | 12 | 4 | 14 | 4 | 10¼ |
| 24 | 8 | 13 | 4½ | 16 | 4½ | 12½ |
| 24 | 10 | 14 | 4½ | 18 | 5 | 14¾ |
| 24 | 12 | 14½ | 5 | 19 | 5 | 17½ |
| 24 | 15 | 15½ | 5 | 19½ | 6 | 20¾ |
| 24 | 18 | 17 | 6 | | | |
| 24 | 21 | 18 | 6½ | | | |
| 24 | 24 | 19 | 6½ | | | |
| 27 | 6 | 12 | 4½ | 16 | 4½ | 11½ |
| 27 | 8 | 13½ | 4½ | 17 | 4½ | 12½ |
| 27 | 10 | 14 | 4½ | 18 | 5 | 12¾ |
| 27 | 12 | 15½ | 5 | 19 | 5½ | 17½ |
| 27 | 15 | 17 | 5 | 21 | 6 | 20¾ |
| 27 | 18 | 17 | 6 | | | |
| 30 | 6 | 13 | 4½ | 16 | 4½ | 11½ |
| 30 | 8 | 14 | 4½ | 17 | 4½ | 12½ |
| 30 | 10 | 15 | 5 | 18 | 6½ | 13 |
| 30 | 12 | 16 | 6 | 19 | 6½ | 16½ |
| 30 | 15 | 17 | 6 | 21 | 7 | 20¾ |
| 30 | 18 | 18 | 6 | | | |
| 33 | 6 | 13 | 4½ | 17 | 4½ | 11½ |
| 33 | 8 | 14 | 5 | 18 | 6 | 13 |
| 33 | 10 | 15 | 5 | 19 | 6½ | 13 |
| 33 | 12 | 16 | 6 | 20 | 6½ | 16½ |
| 33 | 15 | 17 | 6 | 22 | 7 | 17 |
| 33 | 18 | 18 | 8 | | | |
| 36 | 6 | 13 | 4½ | 17 | 4½ | 11½ |
| 36 | 8 | 14 | 5 | 18 | 4½ | 13 |
| 36 | 10 | 15 | 5 | 19 | 5 | 15½ |
| 36 | 12 | 16 | 5 | 19 | 5½ | 17½ |
| 36 | 15 | 17 | 5 | 21 | 6 | 20¾ |
| 36 | 18 | 18 | 6 | | | |

NOTE—Dimensions A, B and C are approximate.

# Vitrified Salt Glazed Clay Sewer Pipe Fittings




## DOUBLE "T" BRANCHES

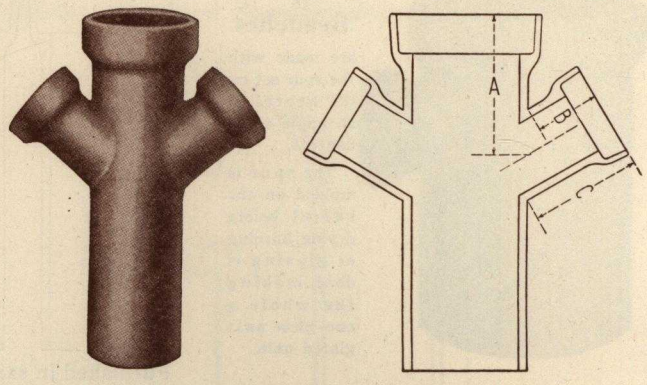
Are made by setting two spurs opposite each other on the same barrel at an angle of 90 degrees.

The spurs are molded on the barrel before drying, burning or glazing is done, making the whole a one-piece salt glazed unit.

### Furnished in Same Lengths as Pipe

| Barrel Diameter Inches | Spurs Diameter Inches | A Inches | B Inches |
|---|---|---|---|
| 4 | 4 | 6 | 3½ |
| 6 | 4 | 7 | 3½ |
| 6 | 6 | 8 | 4½ |
| 8 | 6 | 8½ | 4½ |

NOTE—Dimensions A and B are approximate.




## DOUBLE "Y" BRANCHES

Are made by setting two spurs opposite each other on the same barrel.

The spurs are molded on the barrel before drying, burning or glazing is done, making the whole a one-piece salt glazed unit.

### Furnished in Same Lengths as Pipe

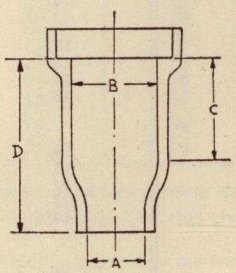
| Barrel Diameter Inches | Spurs Diameter Inches | A Inches | B Inches | C Inches |
|---|---|---|---|---|
| 4 | 4 | 8½ | 3¾ | 8½ |
| 6 | 4 | 9 | 3¾ | 8½ |
| 6 | 6 | 10 | 4½ | 11½ |
| 8 | 6 | 11 | 4½ | 11½ |

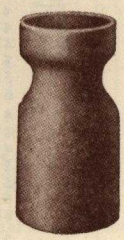
NOTE—Dimensions A, B and C are approximate.

# REDUCERS and INCREASERS

## REDUCERS

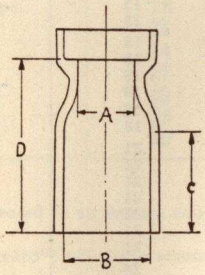
Reducers are used to reduce the size of the main to a smaller diameter. The socket is on the larger end.



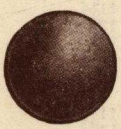



## INCREASERS

Increasers are used to increase the size of the main to a larger diameter. The socket is on the smaller end.

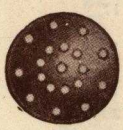



| A Inches | B Inches | C Inches ±¼" | D Inches ±¼" |
|---|---|---|---|
| 4 | 6 | 7 | 12 |
| 6 | 8 | 7 | 12 |
| 8 | 10 | 7 | 12 |
| 10 | 12 | 7 | 12 |



Stopper

Stoppers are used to close T and Y branches until connections are made.



Strainer

Strainers are used in overflow basins and in slop bowls.

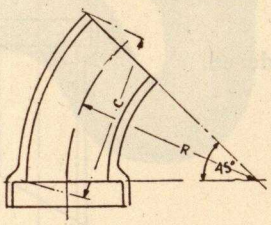
# STOPPERS and STRAINERS

| For Pipe Diameter, Inches | Approx. Outside Diameter, Inches | Thickness Inches |
|---|---|---|
| 4 | 5⅜ | 9/16 |
| 6 | 7¾ | ⅝ |
| 8 | 10 | ¾ |
| 10 | 12¼ | ⅞ |
| 12 | 14½ | 1 |
| 15 | 18¼ | 1¼ |
| 18 | 21½ | 1½ |
| 21 | 25¼ | 1¾ |
| 24 | 28¾ | 2 |

NOTE—Dimensions are approximate.

# Vitrified Salt Glazed Clay Sewer Pipe Fittings

## CURVES (Short Radius)

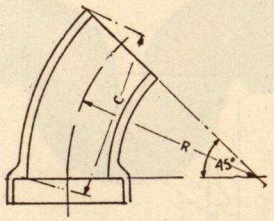



Made in 12" Lengths

Curves are used to change the direction of a line of flow of pipe without making an abrupt angle to obstruct the flow in the line.

| Diameter Inches | C Inches ±½" | R Inches ±½" |
|---|---|---|
| 4 | 13 | 15¼ |
| 6 | 14 | 15¼ |

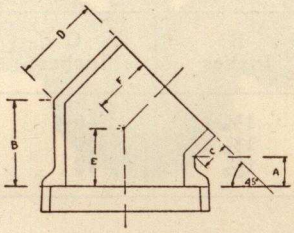
## CURVES (Long Radius)



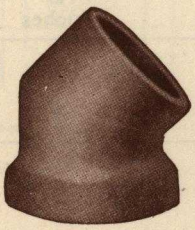

Made in 18" Lengths

| Diameter Inches | C Inches ±½" | R Inches ±½" |
|---|---|---|
| 4 | 18 | 21⅜ |
| 6 | 18 | 21⅜ |

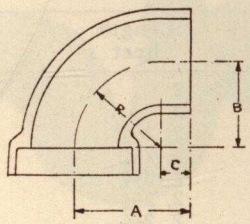
## CUT CURVES




| Diameter Inches | A Inches ±¼" | B Inches ±¼" | C Inches ±¼" | D Inches ±¼" | E Inches ±¼" | F Inches ±¼" |
|---|---|---|---|---|---|---|
| 8 | 2½ | 6⅜ | 2¾ | 6⅝ | 4½ | 4⅝ |
| 10 | 2¾ | 7⅝ | 3 | 7⅞ | 5⅛ | 5½ |
| 12 | 3 | 8¾ | 3 | 8¾ | 5⅞ | 5⅞ |
| 15 | 3⅜ | 10⅝ | 3½ | 10¾ | 7 | 7⅛ |
| 18 | 4 | 12¾ | 4 | 12¾ | 8⅜ | 8⅜ |
| 21 | 4½ | 14½ | 4½ | 15 | 9½ | 9½ |
| 24 | 4¾ | 16⅜ | 4 | 15⅝ | 10½ | 9⅞ |
| 27 | 5 | 18⅛ | 4½ | 17⅝ | 11½ | 11⅛ |
| 30 | 5⅜ | 19⅞ | 4½ | 19 | 12⅝ | 11¾ |
| 33 | 5⅝ | 21½ | 5 | 20⅞ | 13½ | 13 |
| 36 | 6 | 23⅛ | 5 | 22⅛ | 14½ | 13⅝ |

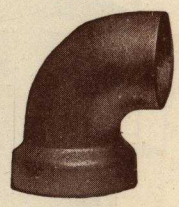


## ELBOWS (Short Radius)

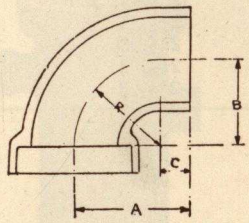



Elbows are used to turn the direction of the line in a sharp turn of 90°.

| Diameter Inches | A Inches ±½" | B Inches ±½" | C Inches ±½" | R Inches ±½" |
|---|---|---|---|---|
| 4 | 6¼ | 4¾ | 1½ | 4¾ |
| 6 | 8¾ | 6½ | 2¼ | 6½ |
| 8 | 10 | 8 | 2 | 8 |



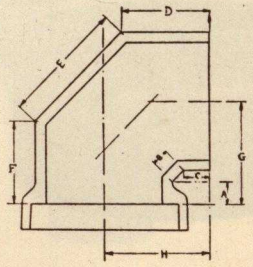
## ELBOWS (Long Radius)




Elbows are used to turn the direction of the line in a turn of 90°.

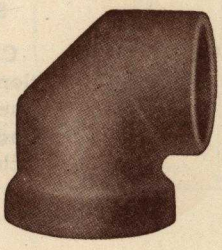
| Diameter Inches | A Inches ±½" | B Inches ±½" | C Inches ±½" | R Inches ±½" |
|---|---|---|---|---|
| 4 | 10 | 9¾ | 1 | 9 |
| 6 | 11¾ | 11 | 1¾ | 10 |
| 8 | 14 | 12 | 2 | 12 |

## CUT ELBOWS



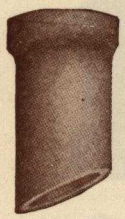

| Diameter Inches | A Inches ±¼" | B Inches ±¼" | C Inches ±¼" | D Inches ±¼" | E Inches ±¼" | F Inches ±¼" | G Inches ±¼" | H Inches ±¼" |
|---|---|---|---|---|---|---|---|---|
| 4 | 2 | 1 | 2½ | 7½ | 5¼ | 7¼ | 5¼ | 5¾ |
| 6 | 2 | 1 | 2½ | 9¾ | 7 | 9¼ | 6¼ | 6¾ |
| 8 | 2½ | 1 | 2½ | 12 | 8¾ | 12 | 8 | 8 |
| 10 | 2½ | 1 | 3 | 14¾ | 10¼ | 14¼ | 9 | 9½ |
| 12 | 3 | 1 | 3 | 17 | 12¼ | 17 | 10¾ | 10¾ |

NOTE—Dimensions are approximate.



# Vitrified Salt Glazed Clay Sewer Pipe Fittings

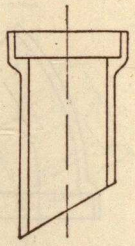
## SLANTS



Made in diameters of 4", 6", 8", 10", 12" and 15". Lengths as ordered.

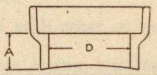
Slants are used for connections into street sewers.

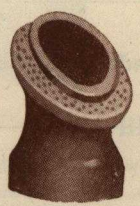
NOTE—Dimensions are approximate.



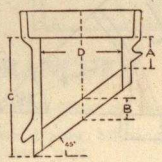
## SADDLES

"T" Saddle



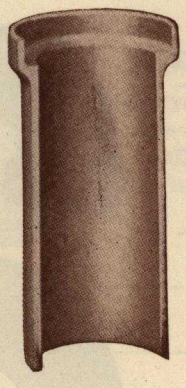
"Y" Saddle




| Diameter D Inches | A Inches |
|---|---|
| 4 | 2½ |
| 6 | 3 |
| 8 | 6 |

| Diameter D Inches | A Inches | B Inches | C Inches |
|---|---|---|---|
| 4 | 1½ | 1½ | 6½ |
| 6 | 2 | 1½ | 9 |
| 8 | 2½ | 1½ | 12 |

## CHANNEL, SPLIT OR GUTTER PIPE



| Diameter Inches | Depth Inches | Length Feet |
|---|---|---|
| 4 | 2 | 2 |
| 6 | 3 | 2 |
| 8 | 4 | 2, 2½ |
| 10 | 5 | 2, 2½ |
| 12 | 6 | 2, 2½ |
| 15 | 7½ | 2, 2½ |
| 18 | 9 | 2, 2½ |
| 21 | 10½ | 2, 2½ |
| 24 | 12 | 2, 2½, 3 |
| 27 | 13½ | 2½, 3 |
| 30 | 15 | 2½, 3 |
| 33 | 16½ | 2½, 3 |
| 36 | 18 | 2½, 3 |

NOTE—Dimensions are approximate.

## CLAY BASKETS

or

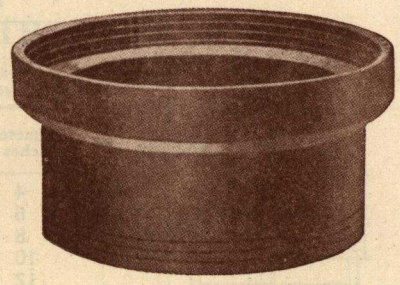
Slop Hopper Strainers

Clay baskets are placed in slop hoppers, and slop bowls. They act as a strainer, and are made in sizes 10, 12 and 15 inches.

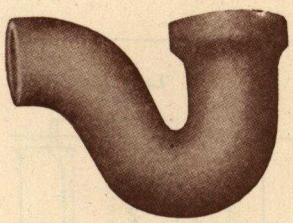
## CISTERN TOPS

There is nothing so good as vitrified pipe for a cistern top. Socket end placed up. Then a double cover may be fitted into the socket around the pump, and you have a cistern that is very nearly air-tight. Dirt or dust can't get in, and "it lasts forever". Cistern tops are the same as vitrified clay sewer pipe except that they are 12 inches long.

| Size Inches | Length Inches | Thickness Inches |
|---|---|---|
| 12 | 12 | 1 |
| 15 | 12 | 1¼ |
| 18 | 12 | 1½ |
| 21 | 12 | 1¾ |
| 24 | 12 | 2 |



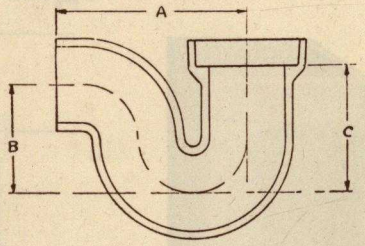
# Vitrified Salt Glazed Clay Sewer Pipe Fittings

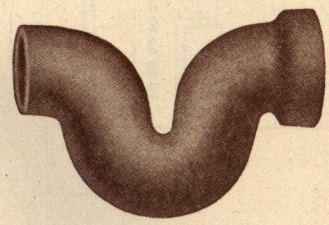


## TRAPS

### P. TRAPS

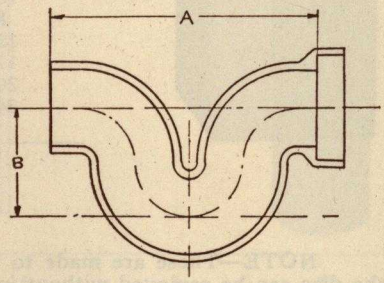
| Dia. Inches | A Inches | B Inches | C Inches |
|---|---|---|---|
| 4 | 10 | 5¾ | 6 |
| 6 | 14¼ | 8 | 10 |
| 8 | 18 | 10 | 14 |

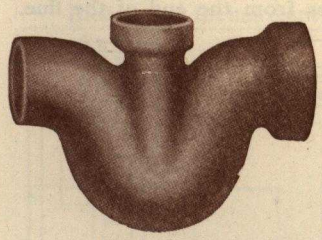


### RUNNING TRAPS

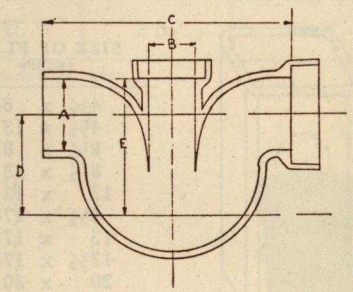
| Dia. Inches | A Inches | B Inches |
|---|---|---|
| 4 | 15½ | 5¾ |
| 6 | 20 | 8 |
| 8 | 26 | 11 |

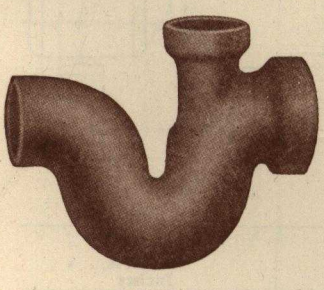


### CENTER HAND-HOLE TRAPS

| A & B Inches | C Inches | D Inches | E Inches |
|---|---|---|---|
| 4 x 4 | 17¾ | 6 | 7¾ |
| 6 x 4 | 24½ | 7¾ | 9¾ |
| 6 x 6 | 25¼ | 9½ | 11¾ |



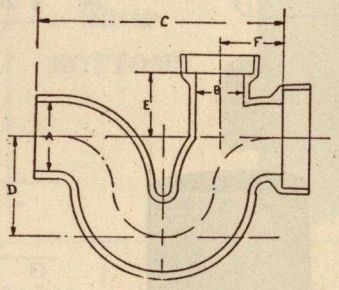



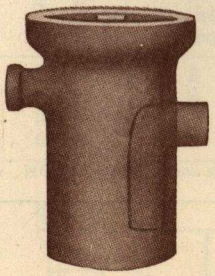
### SIDE HAND-HOLE TRAPS

(Vent Trap)

| Dia. A & B Inches | C Inches | D Inches | E Inches | F Inches |
|---|---|---|---|---|
| 4 x 4 | 15½ | 5¾ | 4 | 4 |
| 6 x 4 | 20 | 8 | 4 | 6 |
| 6 x 6 | 20 | 8 | 5 | 6 |
| 8 x 6 | 26 | 11 | 6½ | 6½ |

NOTE—Dimensions A, B, C, D, E and F are approximate.



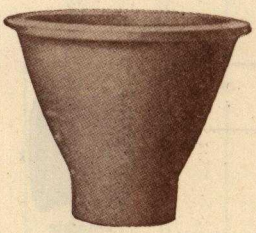



## GREASE TRAPS

The purpose of a grease trap is to separate the grease and soap from the waste water. The grease rises and floats on the surface of the water and can be easily removed.

Grease traps are especially recommended for use in connection with septic tanks. Shipped complete with Vitrified Clay Cover, Bottom and Outlet Elbow.

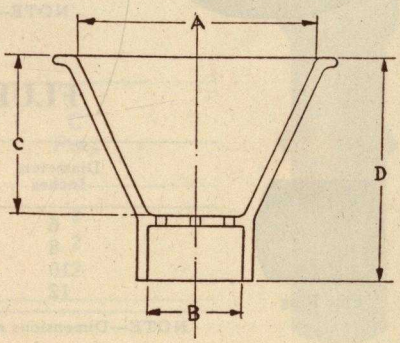
| Size, Inches | 10 x 4<br>10 x 6 | 12 x 4<br>12 x 6 | 15 x 4<br>15 x 6 | 18 x 4<br>18 x 6 | 21 x 4<br>21 x 6 | 24 x 4<br>24 x 6 |
|---|---|---|---|---|---|---|



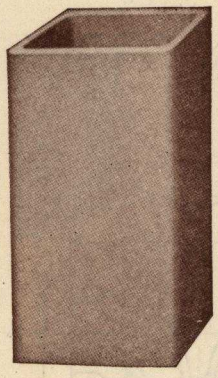
## BOWLS

Slop bowls or hoppers are used to provide surface openings into sewers or drains and to receive slop or roof drainage. A strainer should always be used in connection with the bowl.

| A Inches | B Inches | C Inches ±¼" | D Inches ±¼" |
|---|---|---|---|
| 12 | 4 | 9 | 12 |
| 12 | 6 | 9 | 12 |
| 15 | 4 | 10 | 14 |
| 15 | 6 | 10 | 14 |



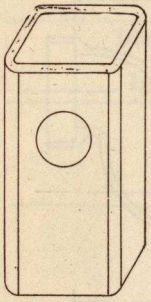
# Rectangular Flue Lining



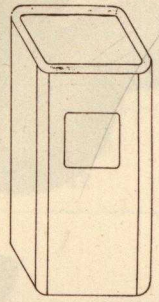
| Outside Dimensions, Inches | Approximate Weight per Foot, Lbs. | Minimum Thickness, Inches | Length, Feet |
|---|---|---|---|
| 4½ x 8½ | 15 | 5/8 | 2 |
| 4½ x 13 | 20 | 3/4 | 2 |
| 8½ x 8½ | 20 | 3/4 | 2 |
| 8½ x 13 | 30 | 7/8 | 2 |
| 13 x 13 | 36 | 7/8 | 2 |
| 8½ x 17½ | 40 | 1 | 2 |
| 13 x 17½ | 54 | 1 | 2 |
| 17½ x 17½ | 70 | 1¼ | 2 |
| 20 x 20 | 90 | 1⅜ | 2 |
| 24 x 24 | 120 | 1½ | 2 |

## FLUE LINING WITH OPENING

NOTE—These are made to facilitate the entrance of thimble or register. The opening is scored in the flue so that the disc can be removed without injury to the flue. The center of the opening is eight inches from the end of the flue.

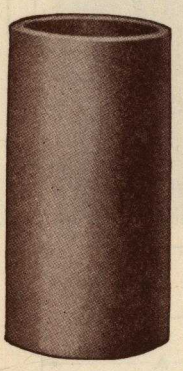


| SIZE OF FLUE Inches | TYPE OF OPENING | | | | |
|---|---|---|---|---|---|
| | Circular Inches | | Square Inches | | Register Inches |
| 4½ x 8½ | 6 | ----- | 6 | ----- | ----- |
| 4½ x 13 | 6 | ----- | 6 | 8 | ----- |
| 8½ x 8½ | 6 | ----- | 6 | ----- | ----- |
| 8½ x 13 | 6 | 8 | 6 | 8 | 6 x 8 |
| 13 x 13 | 6 | 8 | 6 | 8 | 6 x 8 |
| 8½ x 17½ | 6 | 8 | 6 | 8 | 6 x 8 |
| 13 x 17½ | 6 | 8 | 6 | 8 | 6 x 8 |
| 17½ x 17½ | 6 | 8 | 6 | 8 | 6 x 8 |
| 20 x 20 | 6 | 8 | 6 | 8 | 6 x 8 |
| 24 x 24 | 6 | 8 | 6 | 8 | 6 x 8 |



# CIRCULAR FLUES

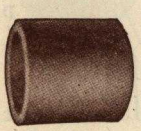
## (Without Sockets)



| Inside Diameter, Inches | Approximate Weight per Foot, Lbs. | Length, Feet | Minimum Thickness, Inches |
|---|---|---|---|
| 6 | 12 | 2 | 5/8 |
| 8 | 20 | 2 | 3/4 |
| 10 | 28 | 2 | 7/8 |
| 12 | 38 | 2 | 1 |
| 15 | 54 | 2 | 1⅛ |
| 18 | 70 | 2 | 1¼ |
| 21 | 108 | 2 | 1⅝ |
| 24 | 130 | 2 | 1⅝ |

When ordering specify the size of the Flue.
NOTE—Dimensions are approximate.

# FLUE RINGS or FIRE CLAY THIMBLES



Flue Ring

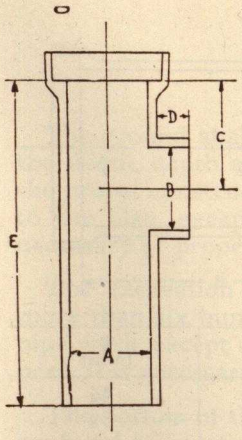
| Diameter, Inches | Made in Lengths of Inches | Minimum Thickness, Inches |
|---|---|---|
| 6 | 4½", 6", 9" and 12" | 5/8 |
| 8 | 4½", 6", 9" and 12" | 3/4 |
| 10 | 4½", 6", 9" and 12" | 7/8 |
| 12 | 4½", 6", 9" and 12" | 1 |

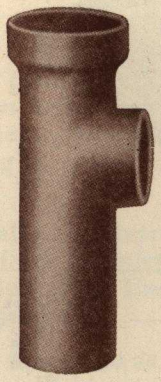
Thimble

NOTE—Dimensions are approximate.

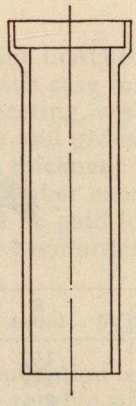
# Flue or Chimney Pipe and Fittings

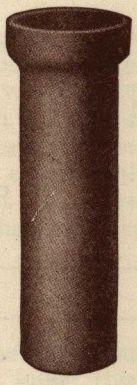
## SINGLE OPENINGS



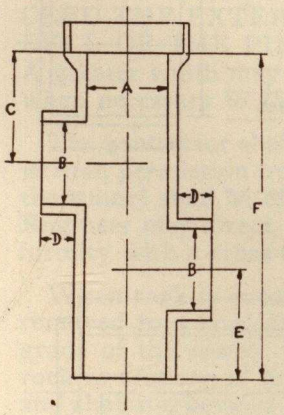
| A B Inches | C Inches Approx. | D Inches Approx. | E Feet |
|---|---|---|---|
| 6 x 6 | 8 | 2½ | 2 |
| 7 x 7 | 8 | 2½ | 2 |
| 8 x 6 | 8 | 2½ | 2 |
| 8 x 8 | 8 | 2½ | 2 |



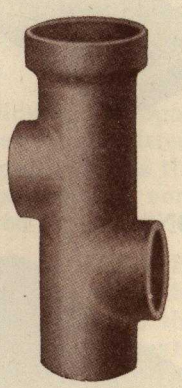


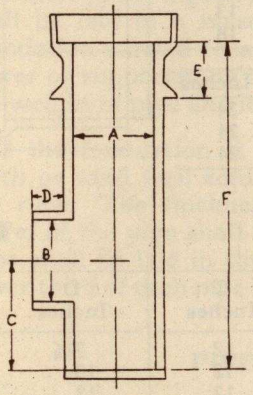
| Dia. Ins. | 6 | 7 | 8 |
|---|---|---|---|
| Length | 2 ft. | 2 ft. | 2 ft. |

NOTE—Large sizes on special order.

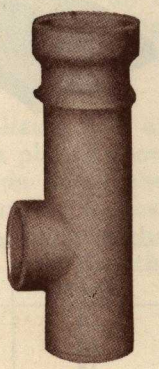



## DOUBLE OPENINGS






## DROP BOTTOMS

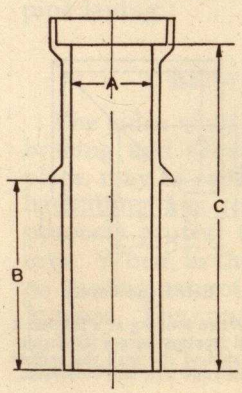


| A B Inches | C Inches Approx. | D Inches Approx. | E Inches Approx. | F Feet |
|---|---|---|---|---|
| 6 x 6 | 8 | 2½ | 8 | 2 |
| 7 x 7 | 8 | 2½ | 8 | 2 |
| 8 x 6 | 8 | 2½ | 8 | 2 |
| 8 x 8 | 8 | 2½ | 8 | 2 |

NOTE—Dimensions are approximate.

| A B Inches | C Inches | D Inches | E Inches | F Feet |
|---|---|---|---|---|
| 6 x 6 | 8 | 2½ | 4 | 2 & 2½ |
| 7 x 7 | 8 | 2½ | 4 | 2 & 2½ |
| 8 x 6 | 8 | 2½ | 4 | 2 & 2½ |
| 8 x 8 | 8 | 2½ | 4 | 2 & 2½ |

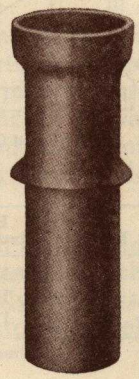
NOTE—Dimensions C, D and E are approximate




## BOTTOMS

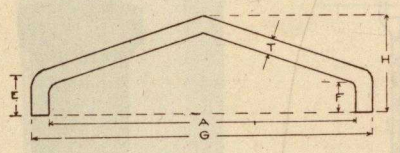
| A Inches | B Inches Approx. | C Feet |
|---|---|---|
| 6 | 14 | 2 |
| 7 | 14 | 2 |
| 8 | 14 | 2 |

NOTE—Dimensions are approximate.

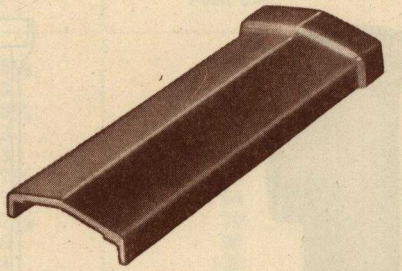


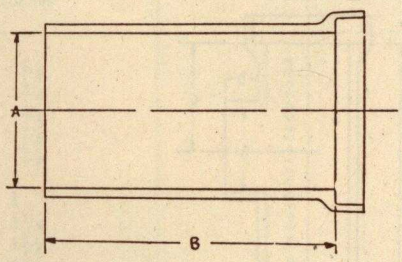
# Wall Coping

## Double Slant Style—Straight Sections




Cross-Section

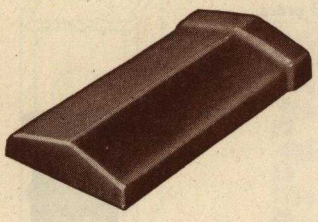




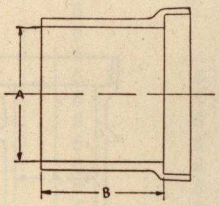

| A Inches | B Inches | E Inches | F Inches | G Inches | H Inches | T Inches |
|---|---|---|---|---|---|---|
| 9 | 24 | 1½ | ¾ | 10¾ | 3¼ | ¾ |
| 13 | 24 | 2¼ | 1½ | 15¼ | 4 | ⅞ |
| 18 | 24 | 2½ | 1¾ | 21 | 6 | 1 |

Also made in 6, 12 and 18-inch lengths.

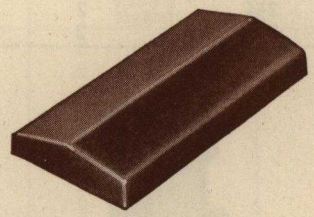
## ENDS



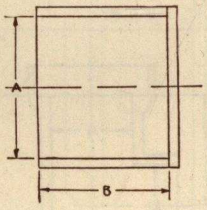
| A Inches |
|---|
| 9 |
| 13 |
| 18 |
| **B Inches** |
| 24 |
| 24 |
| 24 |




## STARTERS



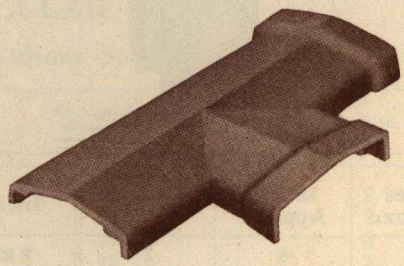
| A Inches |
|---|
| 9 |
| 13 |
| 18 |
| **B Inches** |
| 24 |
| 24 |
| 24 |

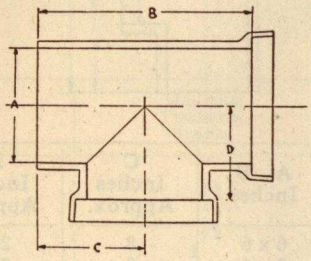


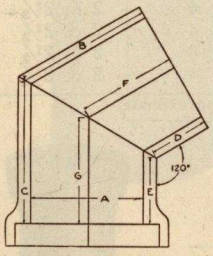

## T SECTIONS

| A Inches | B Inches | C Inches | D Inches |
|---|---|---|---|
| 9 | 24 | 12 | 7¼ |
| 13 | 24 | 12 | 10 |
| 18 | 24 | 12 | 13 |

NOTE—Dimensions C and D are approximate.





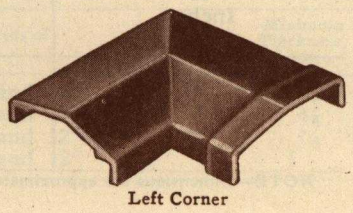

Right Hand Corner

## CORNERS

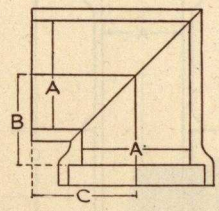
When looking at a right hand wall coping corner from the outside of the wall the socket is on your right, and vice versa.

## 90 DEGREES

| A Inches | B Inches | C Inches |
|---|---|---|
| 9 | 7¼ | 8¾ |
| 13 | 10 | 11½ |
| 18 | 13 | 15 |



Left Corner




Left Hand Corner

When looking at a left hand wall coping corner from the outside of the wall the socket is on your left, and vice versa.

## 120 DEGREES

| A Inches | B Inches | C Inches | D Inches | E Inches | F Inches | G Inches |
|---|---|---|---|---|---|---|
| 9 | 12 | 12 | 5¾ | 5¾ | 9 | 9 |
| 13 | 12 | 12 | 3½ | 3½ | 7¾ | 7¾ |
| 18 | 12 | 12 | ¾ | ¾ | 6½ | 6½ |

NOTE—Dimensions are approximate.

# SPECIFICATIONS FOR THE LAYING OF VITRIFIED SALT GLAZED CLAY SEWER PIPE

## EXCAVATION

The ground shall be excavated in open trench to the width, depth and in the direction necessary for the proper construction of the pipe sewer according to the plan, except where tunneling is considered necessary or proper by the Engineer.

The excavation of the trench shall not advance more than six hundred feet ahead of the completed pipe work, except where, in the opinion of the Engineer, it is necessary because of wet ground.

The bottom of the trench shall be shaped so as to conform as nearly as possible to the outside of the pipe, particular care being taken to recess the bottom of the trench in such a manner as to relieve the bell of the pipe of all load.

Pipe sewers shall be built in a trench, the WIDTH of which at the top of the pipe SHALL NOT EXCEED THE EXTERNAL DIAMETER OF THE BELL OF THE PIPE, PLUS EIGHT INCHES. A greater width may be permitted by the Engineer when necessary to sheet the trench.

The contractor shall do no tunneling except upon written permission from the Engineer. If permitted, the tunnel shall be of such height and width as the Engineer may direct, and shall be excavated in conformity with a cross section approved by him.

When rock is encountered in trenches it shall be removed to a level of at least six inches below the grade of the sewer. The contractor shall strip the rock in sections of not less than fifty feet in length and shall not remove or blast the rock, until notified by the Engineer that the elevation or profile of the rock has been recorded. Where blasts are to be made the contractor shall cover the trench with such suitable brush, timber or matting as will prevent injury to person or property. Before the sewer is built all irregularities of the rock shall be filled with earth or sand, well rammed into place and the bottom of the trench shall be brought to the proper elevation for pipe laying.

## BRACING AND SHORING

The sides of all trenches shall be securely held by bracing and sheeting which, if not ordered left in place, may be removed in units when the level of the backfilling has reached the elevation necessary to properly protect the pipe work and adjacent property. When, in the opinion of the engineer, sheeting or shoring cannot be safely removed, it shall be left in place. The contractor shall be paid for the lumber so left in place at the prices bid. Timber left in place shall be cut off at least two feet below the surface. Payment for matched and grooved sheeting will be made in each case for the length of trench occupied by such sheeting, with no allowance for wastage due to tongues and grooves respectively. In the case of timber, no thickness of sheeting over two inches and no other lumber exceeding in size that customarily used, shall be paid for unless the use of large sizes shall have been ordered in writing by the Engineer.

## FOUNDATIONS

If the foundation is good firm earth, the earth shall be shaped to give a full support to the lower third of each pipe and, if necessary to secure a proper bearing for the pipe, a layer of fine gravel or other suitable material shall be placed. The same means of securing a firm foundation shall be adopted in case the excavation has been made deeper than necessary.

If there is not a good natural foundation, the pipes shall be laid in a masonry cradle supported on a foundation carried to a soil of satisfactory bearing power or supported on a structure designed to carry the weight of pipe and its load to a firm bearing.

If the foundation is rock, an equalizing bed of earth or sand well compacted shall be placed upon the rock. The thickness of these beds under the barrel of the pipe shall be not less than four inches. Pipe shall be laid in these beds so that at least the lower third of each pipe is supported its entire length.

## PIPE LAYING

Trenches shall be kept free from water until the material in the joints has sufficiently hardened.

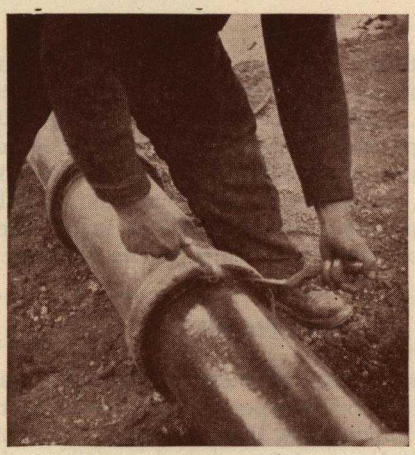
Each pipe shall be laid to the line and grade given by the Engineer and in such manner as to form a close concentric joint with the adjoining pipe and prevent sudden offsets of the flow line. All pipes shall be laid with bells uphill. Joints shall be made in the manner specified.

The interior of the sewer shall, as the work progresses, be cleared of all dirt and superfluous materials of every description. On small pipe sewers, where cleaning after laying may be difficult, a swab or drag shall be kept in the pipe line and pulled forward past each joint immediately after its completion.

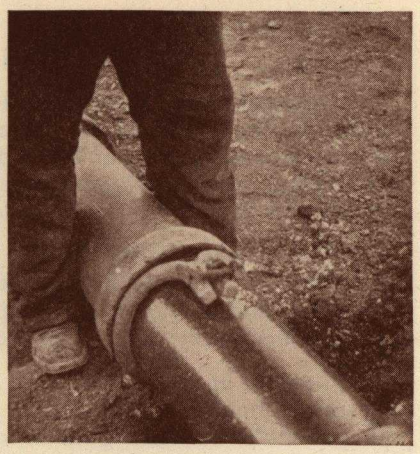
"T" or "Y" branches or junctions shall be installed at the places shown on plans or designated by the Engineer, and when not to be immediately used shall be closed with earthenware discs or stoppers held lightly in place by a fire clay mortar.

## JOINTS

SULPHUR-SILICA JOINTS—Pipe shall be centered so that the annular space is uniform and shall be caulked with a gasket of jute or oakum that is free from tar, oil, or grease. Jute shall be driven back solidly and no loose ends shall be left protruding. The depth of the caulking shall be sufficient to leave a space of at least one and one-half inches for pipes, 18″ and less in diameter, two and one-fourth inches for pipes from 21″ to 24″ in diameter and at least two and one-half inches in depth for pipes greater than 24″ in diameter. This depth shall be measured from the end of the bell. The asbestos runner shall be mudded with puddled clay to prevent the sulphur-silica compound from adhering to it, and shall be placed around the pipe in such a manner that a gate shall be left at the top of the runner, into which the compound shall be poured. The sulphur-silica compound shall be heated in a kettle or plumbers' pot, to approximately 300° F. The compound shall be poured completely at one pouring. Pipe before pouring shall be clean and dry. About five minutes shall be allowed for the compound to set, before the runner shall be removed. Alternate joints may be poured before pipe is lowered into trenches.



Yarning the Pipes to be Jointed in the Trench



Runner in Position

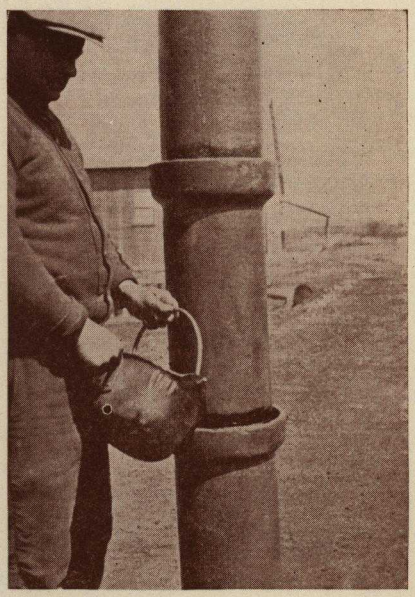
### AMOUNTS OF JUTE AND SULPHUR-SILICA COMPOUND IN POUNDS PER JOINT
### A. S. T. M. VITRIFIED SALT GLAZED SEWER PIPE

| Internal Diameter Pipe Inches | Depth—Inches | | | Weight—Pounds | |
|---|---|---|---|---|---|
| | Socket | Jute | Compound | Jute 25 Lbs. per Cu. Ft. | Sulphur-Silica Compound |
| 4 | 1¾ | ½ | 1¼ | .03 | .78 |
| 6 | 2¼ | ½ | 1¾ | .04 | 1.83 |
| 8 | 2½ | ¾ | 1¾ | .15 | 2.97 |
| 10 | 2½ | ¾ | 1¾ | .26 | 3.63 |
| 12 | 2¾ | 1 | 1¾ | .31 | 4.60 |
| 15 | 2¾ | 1 | 1¾ | .40 | 5.25 |
| 18 | 3 | 1 | 2 | .53 | 7.08 |
| 21 | 3¼ | 1 | 2¼ | .65 | 11.39 |
| 24 | 3⅜ | 1 | 2⅜ | .72 | 13.34 |
| 27 | 3½ | 1 | 2½ | 1.29 | 19.31 |
| 30 | 3½ | 1 | 2½ | 1.65 | 23.85 |
| 33 | 4 | 1 | 3 | 1.76 | 29.25 |
| 36 | 4 | 1 | 3 | 2.44 | 43.20 |

HOT-POURED BITUMINOUS JOINTS — Joints shall be carefully centered and caulked with a gasket of jute or oakum free from oil or grease. The depth of the caulking shall be sufficient to leave a space of at least one inch for pipes 15″ and less in diameter, one and one-half inches for pipes from 18″ to 24″ in diameter and at least two inches in depth for pipes greater than 24″ in diameter. This depth

shall be measured from the end of the bell. A suitable snake runner, previously dipped into thick mud or grout to permit easy removal when the joint is cooled, shall be placed around the pipe. A gate or opening shall be left at the top of the runner into which shall be poured the molten compound. The pouring temperature of the compound shall be between 350° and 450° F. Care shall be exercised not to overheat or subject the compound to unnecessary prolonged heat, since many bituminous compounds change in physical properties under continued heat. The compound shall be poured continuously until the joint is completely filled, and shall be done as rapidly as possible. Pipes before pouring shall be dry and clean. After the compound has cooled or set, the runner may be removed. Where hot-poured joints are used it will be permissible to pour alternate joints, before lowering the pipe into the trenches.

Pouring Joint in the Trench



Pouring Joints on the Bank

## AMOUNTS OF JUTE AND ASPHALTIC JOINTING COMPOUND IN POUNDS PER JOINT
## A. S. T. M. VITRIFIED SALT GLAZED SEWER PIPE

| Internal Diameter Pipe—Inches | Depth—Inches | | | Weight—Pounds | | |
|---|---|---|---|---|---|---|
| | Socket | Jute | Compound | Jute 25 Lbs. per Cu. Ft. | Asphaltic Compound 64 Lbs. Cu. Ft. | Asphaltic Compound 90 Lbs. Cu. Ft. |
| 4 | 1¾ | ¾ | 1 | .074 | .31 | .44 |
| 6 | 2¼ | 1¼ | 1 | .234 | .61 | .86 |
| 8 | 2½ | 1½ | 1 | .365 | .80 | 1.13 |
| 10 | 2½ | 1½ | 1 | .447 | .98 | 1.39 |
| 12 | 2¾ | 1½ | 1¼ | .629 | 1.57 | 2.21 |
| 15 | 2¾ | 1½ | 1¼ | .845 | 2.15 | 3.03 |
| 18 | 3 | 1½ | 1½ | .978 | 3.24 | 4.56 |
| 21 | 3¼ | 1½ | 1¾ | 1.357 | 4.49 | 6.32 |
| 24 | 3⅜ | 1½ | 1⅞ | 1.558 | 5.50 | 7.74 |
| 27 | 3½ | 1½ | 2 | 1.885 | 8.25 | 11.61 |
| 30 | 3½ | 1½ | 2 | 2.089 | 9.15 | 12.86 |
| 33 | 4 | 1½ | 2½ | 2.457 | 13.52 | 19.02 |
| 36 | 4 | 1½ | 2½ | 2.662 | 14.64 | 20.59 |

NOTE—20 per cent of compound included in this table for possible wastage.

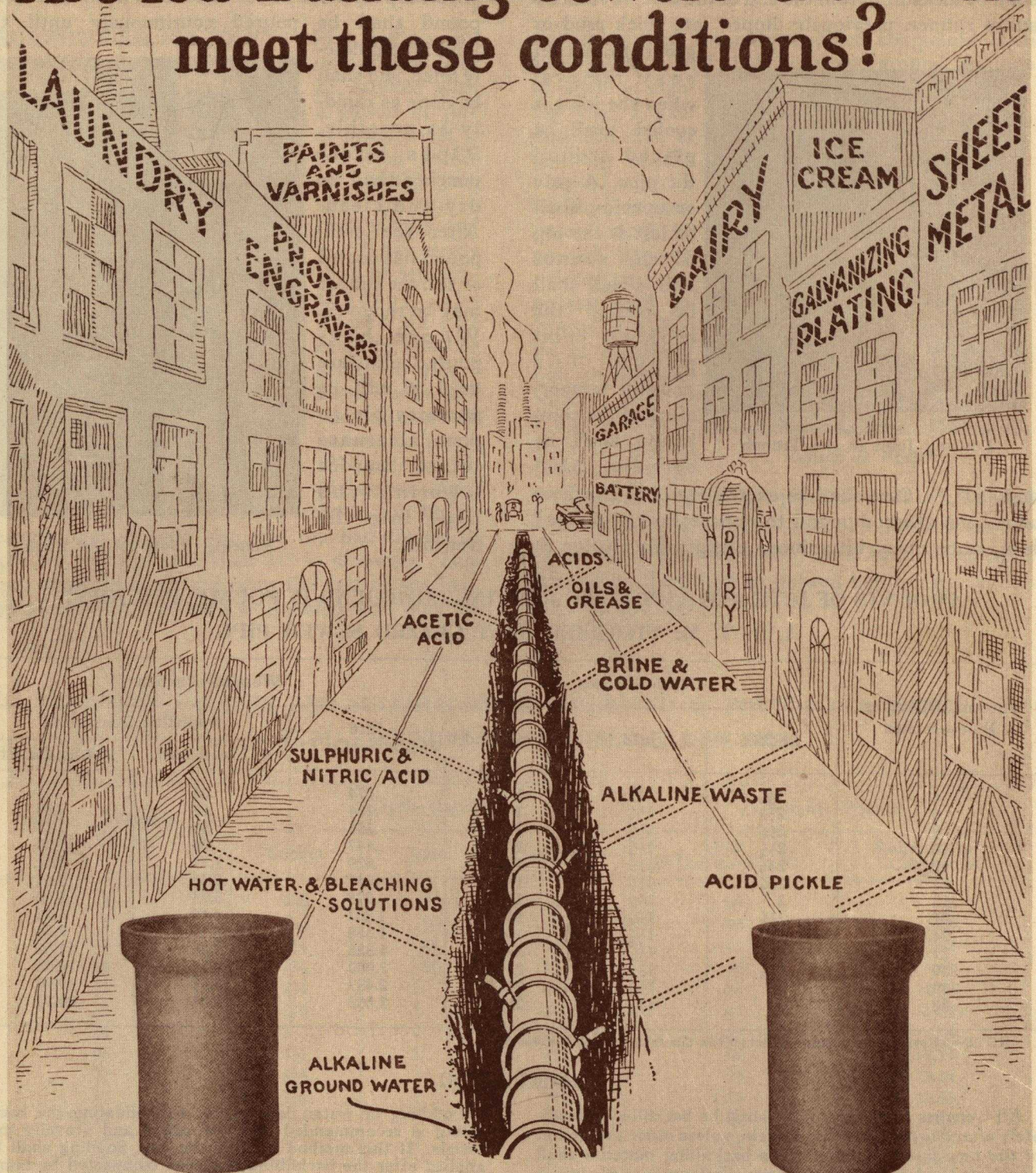
## BACKFILLING

All trenches and excavations shall be backfilled immediately after the pipes are laid therein, unless other protection of the pipe line is directed. The backfilling material shall be selected and deposited with special reference to the future safety of the pipes. Clean earth, sand or rock dust shall be solidly tamped about the pipes up to the level at least one (1) foot above the top of the pipes, and shall be carefully deposited in uniform layers, each layer solidly tamped or rammed with proper tools so as not to injure or disturb the pipe line. The remainder of the backfilling of the trench shall be carried on simultaneously on both sides of the pipes in such a manner that injurious side pressures do not occur.

Puddling or water flooding for consolidating the backfilling is recommended only for sandy and gravelly materials. If this method is used, the first flooding shall be applied after the backfilling has been compacted by tamping up to two (2) feet above the top of the pipes, and the second flooding during or after the subsequent filling of the trench. An excess of water shall be avoided, in order to prevent disturbance of the earth under and around the pipes and also to prevent an excess of pressure upon them.

Walking or working on the completed pipe sewer, except as may be necessary in tamping or backfilling, shall not be permitted until the trench has been backfilled to a height of at least two (2) feet over the top of the pipes.

# Are You Building Sewers that will meet these conditions?




## Vitrified Clay Salt Glazed Sewer Pipe

**will meet all requirements-substitutes are bound to fail**

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